Paper No. 35

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GERHARD SCHNEIDER
and HARALD NEUMANN

Appeal No. 2004-0614
Application 09/176,124

ON BRIEF

Before GARRIS, WARREN and TIMM, *Administrative Patent Judges.*

WARREN, *Administrative Patent Judge.*

Decision on Appeal

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner refusing to allow claims 1 and 3 through 7 as amended subsequent to the final rejection, which are all of the claims in the application. Claim 1 is illustrative of the claims on appeal:

1. A planar sensor element for determining at least one gas component, comprising:

a layer structure including:

a measuring cell layer having at least one surface;

a covering layer;

a heating element disposed between the measuring cell layer and the covering layer and generating a heating power, a layer-shaped heating element conductor being embedded in the heating element; and

at least one electrode, each electrode arranged on a respective surface of the measuring cell layer;

wherein the layer-shaped heating conductor is arranged in a layer plane of the layer structure to obtain an at least approximately homogeneous distribution of the heating power over a cross-section of the sensor element perpendicular to the layer structure; and

wherein the layer plane is centered with respect to the sensor element.

The appealed claims, as represented by the above claim on which all other claims depend, are drawn to a planar sensor element comprising at least a layer structure including at least a measuring cell layer having at least one electrode on the surface thereof, and a covering layer, wherein a heating element having a layer-shaped heating element conductor embedded therein is arranged in a layer plane between the measuring cell layer and the covering layer which is centered with respect to the sensor element, and there is at least an approximately homogeneous distribution of the heating power over a cross-section of the sensor element perpendicular to the layer structure. According to appellants, the planar sensor element can be used to determine oxygen levels in internal combustion engine exhaust gases, and the approximately homogeneous distribution of the heating power improves the "resistance of the sensor element to temperature variations and thermal shock (specification, e.g., pages 1-2).

The references relied on by the examiner are:

Yamada (Yamada '806)	4,505,806	Mar. 19, 1985
Yamada (Yamada '807)	4,505,807	Mar. 19, 1985
Schneider et al. (Schneider)	5,529,677	Jun. 25, 1966

The examiner has rejected appealed claims 1 and 3 through 5 under 35 U.S.C. § 102(b) as unpatentable over Yamada '806 or Yamada '807, and appealed claims 1 and 3 through 7 under 35 U.S.C. § 103(a) as being unpatentable over Schneider in view of either Yamada reference (answer, pages 3-5).

As agreed between appellants (brief, page 4, and reply brief, page 2) and the examiner (answer, page 2), the appealed claims are grouped as follows: claim 1; claims 3 and 4 stand or fall together; and claims 5 through 7 stand or fall together. Thus, we decide this appeal based on appealed claims 1, 3 and 5. 37 CFR § 1.192(c)(7) (2002).

We affirm.

Rather than reiterate the respective positions advanced by the examiner and appellants, we refer to the examiner's answer and to appellants' brief and reply brief for a complete exposition thereof.

Opinion

In order to review the examiner's application of prior art to appealed claims 1, 3 and 5, we must first interpret the language thereof by giving the claim terms their broadest reasonable interpretation consistent with the written description provided in appellant's specification as it would be interpreted by one of ordinary skill in this art, *see In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997) ("[T]he PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification."), without reading into these claims any limitation or particular embodiment which is disclosed in the specification. *See In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989); *In re Priest*, 582 F.2d 33, 37, 199 USPQ 11, 15 (CCPA 1978). Thus, the terms in the appealed claims must be given their ordinary meaning unless another meaning is intended by appellant as established in the written description of their specification. *See, e.g., Morris, supra*; *Zletz, supra* ("During patent prosecution the pending claims must be interpreted as broadly as their terms reasonably allow. When the applicant states the meaning that the claim terms are intended to have, the claims are examined with that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art. *See In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969)."). When the specification does not contain an express definition, a reasonable, supported interpretation of the appealed claims that differs from that urged by appellants can be used to determine the patentability of the claims. *Morris*, 127 F.3d at 1055-56, 44 USPQ2d at 1028-30 ("Absent an express definition in their specification, the fact that appellants can point to definitions or usages that conform to their interpretation does not make the PTO's definition unreasonable when the PTO can point to other sources that support its interpretation."). Thus,

"[i]t is the applicants' burden to precisely define the invention, not the PTO's. See 35 U.S.C. § 112 ¶ 2 [statute omitted]." *Morris*, 127 F.3d at 1055-56, 44 USPQ2d at 1029.

The claimed planar sensor element encompassed by appealed claim 1 comprises at least a layer structure that includes at least some manner of measuring cell layer which has a surface with at least one electrode arranged on that surface; some manner of covering layer; and a heating element containing an embedded, layer-shaped heating conductor, wherein the heating element is arranged in a layer plane disposed in the layer structure between the measuring cell layer and the cover cell layer in a manner such that it is centered with respect to the entire sensor element. The open-ended transition terms "comprising" and "including" open claim 1 to include sensor elements containing additional layers, layer structures and other components, and opens the specified layer structure to include additional layers and other components. *See generally, In re Baxter*, 656 F.2d 679, 686-87, 210 USPQ 795, 802-03 (CCPA 1981) ("As long as one of the monomers in the reaction is propylene, any other monomer may be present, because the term 'comprises' permits the *inclusion* of other steps, elements, or materials."); *see also In re Bertsch*, 132 F.2d 1014, 1019, 56 USPQ 379, 384 (CCPA 1942) ("it is true that the word 'comprising' is usually in patent law held to be synonymous with the word 'including'"); *cf. Ex parte Davis*, 80 USPQ 448, 449 (Bd. App. 1948) ("the word 'comprising' alone being synonymous with 'including'").

Accordingly, reading appealed claim 1 on the specification Figure, "planar sensor element" **10** comprises "a layer structure" which includes "measuring cell layer" **12** containing measuring "electrode" **22** on the top side of "layer" **16** as required by the claim, and further contains the unspecified layers and components cover layer **26**, reference electrode **24** on the bottom side of layer **16**, the latter electrode extending into channel **20** which is in layer **18**; "a heating element" **14** containing "heating conductor" **30** which is "layer-shaped" and "embedded" therein between unspecified insulating layers **28** and **29**, all of which is "arranged in a layer plane" that "is disposed between the measuring cell" **12** and "a covering layer" **32**, and "is centered with respect to the sensor element" **10**; and "a covering layer" **32** which is shown as part of "heating element" **14**.

The interpretation of the term "a covering layer" is at issue. Appellants contend that "the 'covering layer' of claim 1 is not a functional layer but rather acts to help ensure that the heating power is homogeneously distributed over the cross-section of the sensor," and "performs no specific function for proper sensor operation but rather acts to 'cover' the oxygen sensor to help ensure that the heating power is homogeneously distributed over the cross-section of the sensor element" (brief, page 7). The examiner responds that "[t]here is absolutely nothing in . . . [the] claim language that would exclude the [']covering layer['] from having electrodes or acting also in a capacity other than a cover" (answer, page 6).

We find that the written description in the specification states that "[t]he layer structure . . . containing the function layers (function layer-side layer structure) has a total thickness approximately equal to that of the cover foil or the cover-foil-side layer structure" (page, 2, line 11), and with respect to "an exemplary embodiment," shows "[a]n external covering foil 32" (page 3, line 21), stating that

> [i]t is essential . . . that the total thickness of the function layer-side layer structure of the sensor element, considering other layers such as cover layer 26, for example, be (at least approximately) equal to the thickness of cover foil 32 or a cover foil-side layer structure used instead of cover foil 32. [Page 4, lines 6-11.]

Appellants state the caveat that "[t]he layer structure described is, however, not limited to the exemplary embodiment with a Nernst type sensor element 10" as shown in the specification Figure, and that "[t]he design and function of . . . [e.g., a Nernst sensor] are generally known" (specification, page 2, lines 27-37, and page 4, line 37, to page 5, line 5).

In view of the written description in the specification, we agree with the examiner that the recitation of "a cover layer" in appealed claim 1 is not limited by the plain language of the claim terms or by an express definition in the specification to a "cover foil 32" that dissipates heat in an amount approximately equal to the heat dissipated by other sensor element structure including "a measuring layer," and instead, encompasses "a cover foil-side layer structure" which, interpreted broadly, acts as "a cover" and can include Nernst type sensor elements layered thereon. Indeed, we find no basis in the claim language or in the written description in the specification on which to read appellants' intended limitation of a solid plate "cover foil 32" *per se* as shown in the specification Figure into this language of the appealed claims. *See, Zletz, supra; Priest, supra.*

We note again in this respect that, as we pointed out above, the open-ended terms "comprising" and "including" open appealed claim 1 to encompass sensors containing other components, and there is no limitation in this claim that the thickness of "a measuring cell layer" and other claim structure must be approximately equal to "a cover layer," only that the "layer plane" in which the "heating element" containing the "heating conductor" resides, must be "centered with respect to the sensor element" and not with respect to the "measuring cell layer" and the "covering layer" of the specified "layer structure."

Appealed independent claim 1 specifies that the layer-shaped heating conductor is arranged in the centered layer plane so as "to obtain at least approximately homogeneous distribution of the heating power over a cross-section of the sensor element perpendicular to the layer structure." We find no disclosure in the written description of the specification which defines the term "approximately homogeneous," and thus, we interpret this term as having the ordinary meaning of "almost uniform throughout" based on the common dictionary definitions of the terms "approximate" and "homogeneous."[1] Therefore, the "heating power" must be "almost uniform throughout" at least one "cross-section," however narrow, "of the sensor element perpendicular to the layer structure."

There is no limitation in appealed claim 1 with respect to the manner in which the "approximately homogeneous distribution of the heating power" in the at least one "cross-section," however narrow, "of the sensor element perpendicular to the layer structure" is to be achieved. Indeed, as we interpret the claim terms above, the "layer structure" even as broadly claimed, is not the whole of the "sensor element" in all of the sensor elements encompassed by this claim. While the disclosure in the written description in the specification we quote above indicates that the specified "measuring cell layer" and the specified "covering layer" of the specified "layer structure" should be of approximately equal thickness in this respect, the specified temperature distribution would appear to occur only where the materials and the amount and construction thereof are the *same* on each side of "center" of the sensor element as a

[1] *See generally, The American Heritage Dictionary, Second College Edition* 122, 619 (Boston, Houghton Mifflin Company, 1982); *Webster's II New Riverside University Dictionary* 119-20, 589 (Boston, The Riverside Publishing Company. 1984).

whole and at a perpendicular "cross section," however narrow, or otherwise accommodate the same amount of heating power regardless of construction and thickness.

We observe that such conditions are not apparent in the specification Figure at least to the extent of the presence of electrodes **24** and **26** and the absence of material with respect to the cavity in layer **18** in reference channel **20**, and, in this respect, we presume that the structure of the electrodes and associated wiring can be as shown, for example, in **Figs. 1** through **5** of Schneider, the reference acknowledged by appellants in the "Background Information" (specification, page 1). While the specification Figure represents a minor grouping of sensor elements encompassed by claim 1 as we point out above, indeed, the limitations of this claim are nonetheless satisfied in this respect if the temperature distribution occurs at even the narrowest cross section of the sensor element perpendicular to the specified "layer structure."

The plain language of appealed dependent claim 3, drawn in product-by-process format, *see generally, In re Thorpe*, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985); *In re Bridgeford*, 357 F.2d 679, 680-83, 149 USPQ 55, 56-58 (CCPA 1966), requires that "before the layer structure is sintered, the measuring cell layer includes at least two measuring cell layer foils and the covering layer includes at least one covering layer foil," wherein the "predetermined thickness" of the "covering layer foil" must be "at least approximately equal to" the "total thickness of the at least two measuring cell layer foils." Thus, the claim terms describe that part of a "green" composite (specification, e.g., page 2, lines 6-7) containing layers that form the specified "a measuring cell layer" and "a covering layer" *before* "the planar sensor element is formed using a sintering process" that is *not* specified. On this basis, we agree with the examiner that the unspecified "sintering process" can "unite the two [measuring cell layer] foils into one layer" (answer, page 9) and, thus, disagree with appellants' contention that this claim is limited to sensor element *products* that contain a "measuring cell layer [that] includes at least two measuring cell layer foils" (brief, page 8).

Furthermore, claim 3 does not further limit appealed claim 1 with respect to the interpretation that we made of the term "a covering layer" above, and we note here that the "green" composite has a "covering layer [that] includes at least one covering layer foil," thus providing for sensor element products wherein the cover layer includes Nernst type sensor

elements layered thereon. Nor does claim 3 further limit claim 1 with respect to the position of the "centered" heating element because other layers and components can be present between the specified "measuring cell layer" and the specified "covering layer" in addition to the specified "heating element," although the resulting sensor element must comply with the limitations respecting "approximately homogeneous distribution of the heating power" in claim 1.

The plain language of appealed dependent claim 5, also drawn in product-by-process format, *see generally, Thorpe*, *supra*; *Bridgeford*, *supra*, requires a "plurality of electrically insulating layers" which are "formed on both sides of the heating conductor" and in which the heating conductor is thus "embedded," wherein the "thickness of one of the electrically insulating layers" is "approximately equal to" the "thickness of another one of the electrically insulating layers." Thus, the total thickness of the insulating layers formed on one side of the heating conductor can be greater than the total thickness of the insulating layers formed on the other side of the heating conductor, that is, the heating conductor would essentially be embedded in the approximate center of the heating element in the instance where a single insulating layer is formed on each side thereof. Therefore, the claim presents the inconsistency in terms of the final product, that the same result would obtain in terms of overall heating element electrically insulator thickness and material content if a single layer formed on one side of the heating conductor had the same thickness as the total thickness of a plurality of layers that can be formed instead on that side, one layer of the plurality having the same thickness as the single layer formed on the other side of the heating conductor.

This inconsistency, of course, raises issues under 35 U.S.C. § 112, second paragraph, with respect to appealed claim 5 because, even upon considering the interpretation of this language in light of the written description in the specification, the same is, at best, indefinite with respect to the embodiments encompassed. However, in order to resolve prior art issues in this appeal, thus avoiding piecemeal prosecution, we determine that a reasonable, *conditional* interpretation of the claim language is that claim 5 encompasses sensor element products in which one insulating layer can be thicker than the other insulating layer. *Cf. In re Steele*, 305

F.2d 859, 862-63, 134 USPQ 292, 295 (CCPA 1962); *Ex parte Saceman*, 27 USPQ2d 1472, 1474 (Bd. Pat. App. & Int. 1993).[2]

Upon comparing the embodiments of Yamada '806 and '807 with appealed claims 1, 3 and 5 as we have interpreted these claims above, we agree with the examiner's position (answer, pages 3-4) that, *prima facie*, these appealed claims are anticipated as a matter of fact within the meaning of § 102(b). *See generally, In re King*, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986); *Lindemann Maschinenfabrik v. American Hoist and Derrick,* 730 F.2d 1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984). Accordingly, we have again considered consider all of the evidence of anticipation found in the applied prior art with appellants' countervailing evidence of and argument for non-anticipation set forth in the brief and reply brief. *In re Spada*, 911 F.2d 705, 707 n.3, 15 USPQ2d 1655, 1657 n.3. (Fed. Cir. 1990).

Considering first appellants' arguments with respect to structure (brief, pages 4-7 and 7-9; reply brief, pages 2-3), appellants submit that the sensor embodiment of Yamada '806 **FIGs. 7-9** and Yamada '807 **FIGs. 1-2** and **4-5** are "double sensors, i.e., they both have an oxygen pump and an oxygen concentration cell sandwiching a heater layer" (reply brief, page 3; *see also* brief, pages 5 and 6), and thus, neither reference discloses an embodiment that has "a covering layer" which "is not a functional layer but rather acts to help ensure that the heating power is homogeneously distributed over the cross-section of the sensor element" (brief, page 6). In this respect, appellants contend that the examiner's position respecting the interpretation of the claim term "a covering layer" that we set forth above, is unreasonable (brief, pages 6-7).

Upon again considering the interpretation that we made of the claim term "a covering layer" above in light of appellants' arguments, we remain of the view expressed there that when the claim term is considered in light of the written description in the specification, the term includes a "layer" that acts as "a cover" and contains Nernst type sensor elements. We find that in Yamada '806 **FIG. 9**, the lower layers, **13'b** and **13**, include an oxygen concentration cell

[2] We decline to exercise our authority under 37 CFR § 1.196(b) (2003) and enter on the record a new ground of rejection of the appealed claim 5 and claims dependent thereon with respect to these issues, leaving it to the examiner to address the same upon any further consideration of the appealed claims before the examiner.

element layer containing an electrode on each surface, which is a Nernst type sensor element that constitutes "a measuring cell layer" specified in appealed claim 1, and also provides a "cover layer," while the upper layers, **13'a** and **13**,[3] function to "cover" that part of the sensor and include an oxygen pump element layer containing an electrode on each surface, which is a Nernst type sensor element, thus constituting "a covering layer" as specified in claim 1. We further find that "heat resisting metallic layer" **16** on layer **13'b** includes "heat-generating resistor" **16a** and thus, is a "heating element" containing "a layer shaped heating conductor" that is "embedded" between layers **13'a** and **13'b**, such heating element containing the heating conductor "arranged in a layer plane" that is "disposed between the "measuring cell" and the "covering layer," and "centered with respect to the sensor element," all as required by claim 1. Yamada '806 explains the illustrated embodiment at, e.g., col. 2, lines 18-40; col. 3, line 28, to col. 4, line 42; col. 4, line 53, to col. 5, line 48; col. 6, lines 39-42; and col. 6, lines 64, to col. 7, line 14.

We find that in Yamada '807 **FIG. 2**, the lower layer **1** includes an oxygen concentration cell element layer containing an electrode on each surface, which is a Nernst type sensor element that constitutes "a measuring cell layer" specified in appealed claim 1 and also provides a "cover layer," while the upper layer, **2**, functions to "cover" that part of the sensor and include an oxygen pump element layer containing an electrode on each surface, which is a Nernst type sensor element, thus constituting "a covering layer" as specified in claim 1. Between these two layers is layer **3**, which is an electrically insulating plate forming a "heating element" with "layer-shaped" "heat generating resistor" **13** "embedded" between the insulating plate and insulating layer **6**, said heating element containing the heating conductor "arranged in a layer plane" that is "centered with respect to the sensor element," all as required by claim 1.

In similar manner, we find that in Yamada '807 **FIG. 5**, the lower layer **21** includes an oxygen concentration cell element which is a Nernst type sensor element that constitutes "a measuring cell layer" specified in claim 1 and also provides a "cover layer," while the upper layer, **22**, functions to "cover" that part of the sensor and include an oxygen pump element which is a Nernst type sensor element, thus constituting "a covering layer" as specified in claim 1.

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[3] The examiner correctly points out that the order of layers appearing in Yamada '806 **FIG. 9** is **13, 13'a, 13'b** and **13** (answer, page 3).

Between these two layers are "heater element" layer **23** and accompanying insulating board **26**, between which is "embedded" "heat generating resistor" **23**, said heating element containing the heating conductor "arranged in a layer plane" that is "centered with respect to the sensor element," as required by claim 1. Yamada '807 explains the illustrated embodiments at, e.g., col. 2, lines 12-39; col. 3, line 23, to col. 9, line 53; col. 16, lines 49-67; and col. 17, lines 29-47.

Appellants further contend with respect to appealed claim 3, that the claim language requires that "the measuring cell layer includes at least two measuring cell layer foils" and the Yamada embodiments contain "cells [that] include a single electrolyte layer" (brief, page 8). Again considering appellants' arguments, we remain of the view that the claim language to which appellants point must be considered in the context of the claim as a whole from which it is apparent that the "measuring cell layer foils" are present "before the layer structure is sintered," and thus, this product-by-process claim encompasses products prepared by any sintering method, including those that would combine the "green" foils into one layer. Thus, the claimed products encompassed by appealed claim 3 encompass sensor elements wherein "a measuring cell layer" is a single layer with an electrode on each surface thereof, and such "a measuring cell layer" is present in each of the Yamada embodiments read on appealed claim 1.

Appellants argued with respect to appealed claim 5, that "Yamada '806 discloses absolutely no insulating layer(s) whatsoever, and Yamada '807 discloses only a single asymmetrical arranged insulating coating 6 (i.e., not a plurality of layers) arranged on the surface of the heating element 3, thereby precluding the heating element 3 from being 'embedded' within the insulting coating 6, as recited within the context of claim 5" (brief, pages 8-9; emphasis in original deleted). The examiner contends, with respect to Yamada '806 **FIG. 9**, that layers **13'a** and **13'b**, which "sandwich the heater," "can both be made of alumina, which is clearly an insulating material," citing col. 6, line 25, of the reference, and that the layers **3** and **6** in Yamada '807 **FIG. 2** "are both made of alumina," citing col. 4, lines 59-60 and col. 5, lines 37-44, of the reference. We agree with the examiner's finding, and further find that heater element **33** and insulating board **26** of Yamada '807 **FIG. 5** also can be made of electrically insulating alumina (col. 8, lines 67 and 32-33).

It is apparent that layers **13'a** and **13'b** of Yamada '806 **FIG. 9** and layers **33** and **26** of Yamada '807 **FIG. 5** are illustrated as symmetrical in terms of thickness as required by appealed claim 5. As appellants argue, the layers **3** and **6** in Yamada '807 **FIG. 2** are illustrated as being asymmetrical in terms of thickness. However, as we pointed out above, we *conditionally* interpret the language of this claim as encompassing sensor element products in which one insulating layer can be thicker than the other insulating layer.

We now turn to the issue, as framed by the examiner, of whether the heating elements shown in the illustrated sensor elements of the Yamada references "which have the same structure" required by the appealed claims, will inherently heat the sensor elements in a manner which satisfies the claim language "to obtain at least approximately homogeneous distribution of the heating power over a cross-section of the sensor element perpendicular to the layer structure" (answer, pages 6-7). In the brief, appellants argue that neither Yamada reference "discloses, or even suggests, any feature operable to" satisfy this claim limitation, pointing out that "insulating coating 6" of Yamada '807 **FIG. 2** "necessarily acts to prevent a homogenous heat distribution, since the insulating coating 6 is applied asymmetrically," and on this basis, contend that the examiner's application of the doctrine of inherency is inappropriate (brief, page 7). The examiner responds that layer **6** of Yamada '807 **FIG. 2** is electrically insulating as it is made of alumina in the same manner as other layers in the Yamada references, and the difference in thickness with layer **3** "is not sufficiently great as to affect the homogeneous distribution of heat" (answer, pages 7-8). The examiner contends that appellants' "insulating layers 28, 29 sandwiching heater 30 are also both made of alumina," and argues that such alumina layers "would not prevent the homogeneous distribution of heat," pointing to such disclosure of efficient heat distribution in the sensor elements as that at col. 9, lines 25-29, of Yamada '807 that pertains to Yamada '807 **FIG. 5** (answer, page 7). Appellants submit that because it has not been established that the Yamada sensor elements "have structures which necessarily result in a homogeneous distribution of heating power across their respective cross sections," inherency has not been established in this respect, again pointing to the "double sensors" structure of the Yamada sensor elements (reply brief, pages 2-3; emphasis in the original).

We find that Yamada '806 discloses that "[w]hen heating electric current is applied to the heat-generating resistor 16a . . . the temperature range in which the oxygen sensor [shown in Yamada '806 **FIG. 9**] can be used is expanded; and the temperature dependency of the measurement is accurately and efficiently compensated for . . . ." (col. 6, lines 56-63). We further find that Yamada '807 discloses that, with respect to Yamada '807 **FIG. 2**, "the heater element 3 incorporated in the oxygen sensor acts to efficiently heat the entire oxygen sensor to bring about excellent temperature compensation" (col. 6, lines 47-51), the same statement being made with to Yamada '807 **FIG. 5** at col. 9, lines 25-29. *See also* Yamada '807, col. 17, lines 29-41.

Based on the record before us, we agree with the examiner that sensor elements encompassed by appealed claims 1, 3 and 5 have the same structure as the embodiments of Yamada '806 **FIG. 9** and Yamada '807 **FIGs. 2** and **5**. Indeed, in terms of heat distribution, the Yamada embodiments have a symmetry of layers and materials that is not encompassed by even the embodiment illustrated in the specification Figure, in view of, *inter alia*, the metal materials involved with the electrodes in the alumina measuring cell layer shown therein, as illustrated by the Schneider **FIGs.** as we discussed above, vis-à-vis the "covering layer" which apparently is entirely alumina.

All that is required by the claim language is that the "heating power" must be "almost uniform throughout" at least one "cross-section," however narrow, "of the sensor element perpendicular to the layer structure." Here, the examiner has brought forward substantial evidence in support of the contention that the embodiments of Yamada '806 **FIG. 9** and Yamada '807 **FIGs. 2** and **5** would necessarily and inherently satisfy this claim limitation, even though Yamada does not expressly state the claimed property. Accordingly, because it reasonably appears that these sensor elements of Yamada are identical to the claimed sensor elements encompassed by appealed claims 1, 3 and 5, the burden has shifted to appellants to patentably distinguish the claimed sensor elements from those of Yamada by the submission of persuasive argument and/or object evidence. On this record, appellants have not done so in either respect. *See, e.g., King*, 801 F.2d at 1326-28, 231 USPQ at 138-39; *In re Best*, 562 F.2d 1252, 1254-56, 195 USPQ 430, 432-34 (CCPA 1977); *cf. In re Skoner*, 517 F.2d 947, 950-51, 186 USPQ at 82-

83 (CCPA 1975) ("Appellants have chosen to describe their invention in terms of certain physical characteristics . . . . Merely choosing to describe their invention in this manner does not render patentable their method which is clearly obvious in view of [the reference]. [Citation omitted.]"); *cf. also Spada*, 911 F.2d at 708-09, 15 USPQ2d at 1657-58 ("The Board held that the compositions claimed by Spada 'appear to be identical' to those described by Smith. While Spada criticizes the usage of the word 'appear,' we think that it was reasonable for the PTO to infer that the polymerization by both Smith and Spada of identical monomers, employing the same or similar polymerization techniques, would produce polymers having the identical composition.")

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of anticipation found in each of Yamaha "806 and Yamaha '807 with appellants' countervailing evidence of and argument for no anticipation in fact and find that the claimed invention encompassed by appealed claims 1 and 3 through 5 are anticipated as a matter of fact under 35 U.S.C. § 102(b).

Turning now to the ground of rejection under § 103(a) based on the combined teachings of Schneider, Yamaha '806 and Yamaha '807, appellants again argue appealed claims 1, 3 and 5 in the brief and reply brief, which claims we considered above with respect to Yamaha '806 and Yamaha '807. On this basis, we consider that our determination that the claimed sensor elements encompassed by claims 1, 3 and 5 are anticipated by each of Yamaha '806 and Yamaha '807 is dispositive here because it is well settled that "anticipation is the ultimate of obviousness." *See In re Baxter Travenol Labs.*, 952 F.2d 388, 392, 21 USPQ2d 1281, 1284-85 (Fed Cir. 1991), citing *In re Fracalossi*, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982). Thus, consideration of Schneider is not necessary to our decision. *See In re Kronig*, 539 F.2d 1300, 1302-04, 190 USPQ 425, 426-28 (CCPA 1976). Accordingly, we affirm this ground of rejection of appealed claims 1 and 3 through 7 as well.

The examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

BRADLEY R. GARRIS)
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